

10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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a silicon nitride film formed on said first interlayer insulating film; and

20

said substrate includes a semiconductor substrate and a buried insulating film

said semiconductor device further comprising:

25

a first gate electrode so formed on said main surface of said semiconductor layer

with a first gate insulating film interposed therebetween as to oppose to a region sandwiched between said first source region and drain region;

5 a first impurity region of the first conductivity type formed in said second active region, being electrically connected to said region sandwiched between said first source region and drain region through said first semiconductor region below said isolation insulating film; and

10 a first wire, a second wire and a third wire connected to said first source region and drain region and said first impurity region through contact holes which are so formed as to penetrate said first and second interlayer insulating films and said silicon nitride film, respectively.

3. The semiconductor device according to claim 2, wherein
said semiconductor layer further has a third active region of the second conductivity type and a fourth active region of the second conductivity type both of which are provided in said main surface thereof, and

20 said isolation insulating film is further provided between said third and fourth active regions and between said first and fourth active regions, said isolation insulating film provided between said third and fourth active regions is formed in said main surface of said semiconductor layer, leaving a second semiconductor region which is part of said semiconductor layer between itself and said buried insulating film, and said isolation insulating film provided between said first and fourth active regions is formed in said main surface of said semiconductor layer, leaving a third semiconductor region which is part of said semiconductor layer between itself and said buried insulating film,

25 said semiconductor device further comprising:
second source region and drain region of the first conductivity type formed in

said main surface of said semiconductor layer of said fourth active region at a predetermined distance;

a second gate electrode so formed on said main surface of said semiconductor layer with a second gate insulating film interposed therebetween as to oppose to a region sandwiched between said second source region and drain region; and

a second impurity region of the second conductivity type formed in said main surface of said semiconductor layer of said third active region, being electrically connected to said region sandwiched between said second source region and drain region through said second semiconductor region below said isolation insulating film,

wherein said first interlayer insulating film, said silicon nitride film and said second interlayer insulating film extend onto said main surface of said semiconductor layer in said third and fourth active regions,

said semiconductor device further comprising:

a fourth wire, a fifth wire and a sixth wire connected to said second source region and drain region and said second impurity region through said contact holes which are formed in said first and second interlayer insulating films and said silicon nitride film, respectively.

4. The semiconductor device according to claim 2, wherein

said semiconductor layer further has a third active region of the second conductivity type and a fourth active region of the second conductivity type both of which are provided in said main surface thereof, and

said isolation insulating film is further provided between said third and fourth active regions and between said first and fourth active regions, said isolation insulating film provided between said third and fourth active regions is formed in said main surface

5 said semiconductor device further comprising:

a second gate electrode so formed on said main surface of said semiconductor layer with a second gate insulating film interposed therebetween as to oppose to a region sandwiched between said second source region and drain region; and

wherein said first interlayer insulating film, said silicon nitride film and said second interlayer insulating film extend onto said main surface of said semiconductor layer in said third and fourth active regions;

20 wires connected to said second source region and drain region and said second impurity region through said contact holes which are formed in said first and second interlayer insulating films and said silicon nitride film, respectively.

said first and second wires connected to said source region and drain region

include wires extending to said surfaces of said isolation insulating films adjacent to said first source region and drain region, respectively.

- 5 6. The semiconductor device according to claim 5, wherein
said first semiconductor region below said isolation insulating film has partial
impurity regions of the same conductivity type in respective regions adjacent to said first
source region and drain region.

- Sub
A
10 7. The semiconductor device according to claim 1, wherein
said silicon nitride film includes a silicon nitride film entirely formed.

- Sub
C
15 8. The semiconductor device according to claim 2, further comprising:
a metal silicide layer formed in surfaces of said source region and drain region.

- 15 9. A method of manufacturing a semiconductor device, comprising the step of:
(a) preparing an SOI substrate having a semiconductor layer which is formed
with a substrate in which at least its surface is insulative disposed therebelow, said
semiconductor layer having a first active region and a second active region both of a first
conductivity type in a main surface thereof;

- 20 (b) forming an isolation insulating film so as to surround said first and second
active regions and leave a first semiconductor region which is part of said semiconductor
layer therebelow;

(f) forming a first interlayer insulating film on said semiconductor layer in said
first and second active regions and a surface of said isolation insulating film;

- 25 (g) forming a silicon nitride film on said first interlayer insulating film; and

(h) forming a second interlayer insulating film on a surface of said silicon nitride film.

10. The method of manufacturing a semiconductor device according to claim 9,
5 wherein

said substrate includes a semiconductor substrate and a buried oxide film,
said method further comprising the steps of:

(c) forming a first impurity region of the first conductivity type on a main surface of said semiconductor layer in said second active region;

10 (d) forming a first gate electrode on said main surface of said semiconductor layer in said first active region with a first gate insulating film interposed therebetween;

(e) forming first source region and drain region of a second conductivity type in said main surfaces of said semiconductor layer of said first active region which sandwich a region opposed to said first gate electrode at a predetermined distance;

15 (i) forming contact holes which reach said first source region and drain region and said first impurity region in said first and second interlayer insulating films and said silicon nitride film, respectively; and

(j) forming a first wire, a second wire, a third wire which are connected to said first source region and drain region and said first impurity region through said contact
20 holes, respectively.

11. The method of manufacturing a semiconductor device according to claim 10,
wherein

said semiconductor layer further has a third active region of the second
25 conductivity type and a fourth active region of the second conductivity type in its main

surface, and said fourth source region is provided adjacently to said first active region and said third active region is provided adjacently to said fourth active region,

said step (a) includes the steps of:

(a-1) selectively introducing an impurity of the first conductivity type into said
5 main surface of said semiconductor layer to obtain said first and second active regions;
and

(a-2) selectively introducing an impurity of the second conductivity type into
said main surface of said semiconductor layer to obtain said third and fourth active
regions,

10 said step (b) includes the step of:

forming said isolation insulating film so as to surround said third and fourth
active regions and leave a second semiconductor region which is part of said
semiconductor layer therebelow;

said step (c) includes the step of:

15 forming a second impurity region of the second conductivity type in said third
active region,

said step (d) includes the step of:

forming a second gate electrode on a main surface of said fourth active region
with a second gate insulating film interposed therebetween,

20 said step (e) includes the step of:

forming second source region and drain region of the first conductivity type in
said main surfaces of said semiconductor layer of said fourth active region which
sandwich a region opposed to said second gate electrode at a predetermined distance,

said first interlayer insulating film, said silicon nitride film and said second
25 interlayer insulating film formed in said steps (f) to (h) extend onto surfaces of said

semiconductor layer in said third and fourth active regions,

said step (i) includes the step of:

forming contact holes which reach said second source region and drain region and said second impurity region in said first and second interlayer insulating films and said silicon nitride film, respectively, and

said step (j) includes the step of:

forming a fourth wire, a fifth wire, a sixth wire which are connected to said second source region and drain region and said second impurity region through said contact holes, respectively.

12. The method of manufacturing a semiconductor device according to claim 10, wherein

said step (i) includes the steps of:

(i-1) etching said second interlayer insulating film; and

(i-2) etching said first interlayer insulating film independently of said step (i-1).

13. The method of manufacturing a semiconductor device according to claim 12, wherein

said contact holes formed in said step (i) include contact holes which extend onto surfaces of said isolation insulating films adjacently to said first source region and drain region, respectively.

14. The method of manufacturing a semiconductor device according to claim 12, wherein

said step (i-1) includes the step of:

ten of:

ten of:

ten of:

Child
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[illegible]